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REMARKS

Claims 1-11 are currently pending in the instant application. Claims 1, 5, 8, and 9 are rejected under 35 U.S.C. §103 as being anticipated by U.S. Patent No. 5,933,601 (Fanshier et al.)(hereinafter, "Fanshier") in view of the NCR article entitled "*TOP END on Windows NT – The Continuing Evolution of Open Systems*"(hereinafter, "NCR"). Claims 2-4, 6, 7, 10 and 11 are rejected under U.S.C. §103(a) as being unpatentable over Fanshier and NCR in view of U.S. Patent No. 6,275,867 (Bendert et al.)(hereinafter, "Bendert"). Applicant continues to traverse for the reasons set forth below and in the previously submitted Response Including Amendment dated October 23, 2002 and Response dated June 2003.

**L Background****A. Applicant's Invention**

As per Applicant's above-referenced responses, Applicant's claimed invention seeks to provide a solution where a distributed application that requires centralized administration via a master node is running in a clustered computing environment, where administrative control resides in each node of the environment.

More specifically, as set forth in detail in the subject specification, it is appreciated that distributed network applications often have defined the concept of a master machine that performs administration for the entire distributed application. (*Application No. 09/127,167*, p. 2) In the exemplary case of the Tuxedo environment, one of these Logical Machines is designated as the master, on which is running a DBBL process which performs administration for the entire Domain, including bringing a component online, taking a component offline, or checking the status of an individual component. (*Application No. 09/127,167*, p.3).

A problem arises with such a distributed application when it is required to run in a clustered computing environment, such as by way of example, Microsoft Cluster Server (MSCS) in Microsoft® Windows NT®, Enterprise Edition, where administration is implemented on each of the connected systems (nodes) composing the cluster. As set forth in more detail in the specification, in the exemplary clustered environment, MSCS is controlled by the Cluster Service, which runs on each note of the cluster. (*Id.*). The Cluster Service spawns one or more Resource Monitors, each of which calls entry points in a Resource DLL, the latter of which implements the actions needed to bring the resource on-line or to take

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the resources off-line. (*Id.*). Thus, contrary to distributed network application that requires centralized administration via a master node, each node in the clustered computing environment maintains the administrative control.

Applicant's invention provides a solution to this problem. As set forth in claims 1, 5, 8, and 9, an administrative request from the clustered computing environment is first received at an originating node, and it is then determined whether the originating node is a designated master node for the distributed network application. If it is determined that the originating mode is not the designated master node, then the administrative request is routed to that mode which is the designated master node. (*See, Serial No. 09/127,167, claims 1, 5, 8 and 9*). In a preferred embodiment, this is accomplished an instance of a named pipe is created between the originating node and the designated master node, and passing the administrative request from the originating node to the designated master node via the named pipe. (*See, Serial No. 09/127,167; e.g., claims 2, 6, and 10*).

B. Cited Art – Fanshier, NCR, Bendert

Fanshier discloses an object-based systems management methodology for distributed computer networks, such as (then) NCR's TOP END™ system, which allows customers to create their own systems administration utilities. (*See Fanshier generally; also, Background of the Invention; Col. 3, lines 45-53*). In relevant part, the system 10 is comprised of one or more nodes 12 interconnected by a network 14, wherein each of the nodes 12 comprises one or more computers. (*Id., Col. 2, lines 31-33*). Having a client/server architecture, the system 10 includes server systems operating on node 12, and connections from at least one of the nodes 12 to the workstations 18 on which are operating client systems. (*Id. at Col 2, lines 37-43*). A node includes several modular components 20, each modular component 20 comprising a process or logical group that performs one of more functions, and which works with the other modular components 20 to process distributed transactions initiated by a client system. Work is divided among the nodes 12 by spreading the location of the modular components 20 across the nodes, and having one or more of these "spread-out" components execute a portion of the client-initiated request. (*Id. at Col 2, lines 50-64*). These modular, distributed application components 30 might include software such as an Oracle® accounting application, Sybase® airline application, and similar on-line transaction processing (OLTP) applications (*See, e.g., Id. at Fig. 1*).

Each node 12 of the system 10 further includes a node manager 28, which coordinates processing among all of the nodes 12. (*Id. at Col 3, lines 9-12; Figure 1*). The coordinating processes provided by

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the node manager 28 include transaction management, failure recovery, client/server request handling, runtime administration, etc. (*Id. at Col 2, lines 12-17*). All nodes 12 may be controlled globally by an administrator from a workstation 18 ("global" mode) or may singularly be controlled a node-by-node basis ("single node" mode). (*Id. at Col 3, lines 37-44*). This is accomplished via a transaction processing system management (TPSM) utility 32.

The TPSM utility 32 is a user interface and object-based data representation of the system 10, that allows a user to specify system 10, nodes 12, and/or modular components 20 that are to be manipulated by the systems management tools that provide management support for diagnostics, connection and disconnection from the system 10, and other system management functions. (*Id. Col. 4, lines 18-24; lines 62-64*). The TPSM utility 32 comprises one or more object programs that are linked to one or more component libraries known as an SM Applications Programming Interface ("SMAPP"), and which provide the functions necessary for the desired administrative functions discussed above. All objects form a hierarchy that is representative of the physical hierarchy (i.e., session→system→node→component), and each object describes the status of the element that it represents (e.g., node object 50 describes the status of a particular node 12 of system 10). As is common in all object-based systems, each object has attributes, services and relationships with other objects. (*Id. Col. 5, lines 5-51*).

NCR appears to be a technical white paper dated February 17, 1997, in which is discussed the running of NCR's TOP END distributed computing environment application on Microsoft's Windows NT platform, and in heterogeneous environments such as mixed UNIX and NT environments (NCR, "Intended Audience and Scope of Paper," pp. 1-2). As all of the Figures were missing in the print copy of the reference provided in the last Office Action, and Applicant's undersigned representative could not locate a copy of it on the Internet, Applicant cannot make a complete assessment of the reference.

Bendert teaches a system of off-loading server operations without the partitioning of the object affected by the server operation and without off-loading the entire affected object. As Bendert was merely cited by the Examiner for its teaching of the facilitation of communication in a distributed processing system through the use of named pipes, Applicant will not further discuss this reference.

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**II. Rejection of Claims 1, 5, 8, and 9 under 35 U.S.C. §103 - (Fanshier in view of NCR)**

**A. None of the Cited Art References Teaches or Suggests Clustered Computing Environments**

It is clear from the discussion above that Fanshier does not teach or suggest Applicant's invention. While Fanshier discloses a distributed application environment (such as OLTP), there is no mention of clustered computing environments.

**1. None of the Cited Art References Teaches or Suggests Enabling a Distributed Network Application to Execute on the Plurality of Nodes in a Clustered Computing Environment and, in fact, Fanshier Teaches Away from the Claimed Invention**

More specifically, although Fanshier discloses a distributed application environment (such as OLTP), there is no mention of a distributed network application executing in a clustered computing environment. This is a critical element in Applicant's invention, as it is the problem of running such an application in a clustered computing environment (such as that having an MSCS architecture) that Applicant is addressing with his claimed invention (as evidenced, e.g., in any of independent claims 1, 5, and 8).

Although Applicant clearly distinguishes between a distributed computing environment and a clustered computing environment in his application, and the difference is known to those skilled in the art, the Examiner seems to gloss over this difference, improperly equating the two:

*Fanshier teaches...a clustered computing environment (distributed computing environment 10, known as a TOP END system, Fig. 1) (Office Action dated August 13, 2003), p. 2)*

As set forth in Applicant's application (at Description of the Prior Art) (as reiterated above), and with further reference to two Microsoft technical articles available at

[http://www.microsoft.com/ntserver/support/faqs/Clustering\\_faq.asp](http://www.microsoft.com/ntserver/support/faqs/Clustering_faq.asp) and

[http://msdn.microsoft.com/library/default.asp?url=/library/en-us/dnmscs/html/msdn\\_msccs\\_resource\\_dlls.asp](http://msdn.microsoft.com/library/default.asp?url=/library/en-us/dnmscs/html/msdn_msccs_resource_dlls.asp),

the relevant sections of which are attached hereto as Appendix A, contrary to a distributed network application that requires centralized administration via a master node, *each node* in a clustered computing environment maintains administrative control. Furthermore, as will also be appreciated to those skilled in the art, a cluster allows an application and its associated data to be moved dynamically and automatically from one node to another with minimal disruption to connected clients (see, e.g.,

[http://www.microsoft.com/ntserver/support/faqs/Clustering\\_faq.asp](http://www.microsoft.com/ntserver/support/faqs/Clustering_faq.asp) Appendix A ("Availability: MSCS can

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*automatically detect the failure of an application or server, and quickly restart it on a surviving server. Users only experience a momentary pause in service.")* The distributed applications 20 of Fanshier, for example, cannot move dynamically between nodes- that is, from one node to another.

In fact, not only does Fanshier not specifically disclose clustered computing environments, but also it clearly teaches away from Applicant's invention. As previously argued, each node 12 in Fanshier has its own node manager 28, each of which offers core services to coordinate processing among the nodes 12 (*see, e.g., Fig. 1; Col. 3, lines 9-12*). This clearly cannot be considered a clustered computing environment as it directly contradicts the definition thereof.

As neither the NCR nor Bendert references are cited for disclosing or teaching clustered computing environments (nor do they do so), independent claims 1, 5, and 8 are patentable under 35 U.S.C. 103(a) over all of the cited art. As claims 2-4, 6-7, and 9-11 depend directly or indirectly therefrom, they too are patentable over all of the cited art.

**2. None of the Cited Art References Teaches the Step of "Receiving an Administrative Request from the Clustered Computing Environment at an Originating Node Thereof"**

As set forth in independent claims 1, 5 and 8, Applicant's invention requires the step of "*receiving an administrative request from the clustered computing environment at an originating node thereof*" As none of the cited art teaches or suggests clustered computing environments or distributed network applications executing in a clustered computing environment, this step is also not taught or suggested. For this additional reason, independent claims 1, 5, and 8 are patentable under 35 U.S.C. 103(a) over all of the cited art. As claims 2-4, 6-7, and 9-11 depend directly or indirectly therefrom, they too are patentable over all of the cited art.

**B. The Presence of ADMIN 40 on a Node 12 Cannot be Used to Identify That Node 12 as a "Master Node" as Used by Applicant and as Recognized in the Field of Distributed Network Applications**

As set forth in Applicant's *Description of the Prior Art* and in Applicant's previous responses, distributed network applications often have a master machine or node that performs the administration for the entire application, including, e.g., bringing a component on-line, taking a component offline, or checking the status of an individual component. (*Serial No. 09/127,167; p. 2, lines 1-5*) That designated node for the distributed application remains the single, master node regardless of which node makes the request. (*Id. at p. 2, lines 12-16*).

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1. There Is No Support in the Fanshier Reference for Equating the ADMIN Process 40 with One "Master Node"

The Examiner states that:

*ADMIN process 40 [runs] on the appropriate node 12 in the TOP END system....; it is noted that the master node is where the ADMIN process 40 resides." (Office Action dated August 13, 2003, p.2)(Emphasis added)*

Furthermore, he states at page 3 of the Office Action that:

*The originating nodes is [sic] the designated master mode when the TPSM utility is running in local mode because the TPSM utility resides on the same node as ADMIN process 40. The administrative request is routed from the originating node to the designated master node when the TPSM utility is running in remote mode and the administrative request is forwarded to the ADMIN process on the appropriate node. (Id. at p. 3)*

However, although the Examiner makes reference to Col. 4, lines 52-61 of Fanshier, he does not supply any additional support for how he has arrived at the conclusion that the node where ADMIN process 40 resides is the "designated master node."

In fact, Fanshier states that the ADMIN process is merely:

*responsible for forwarding administrative requests to the desired TOP END noted 12 and components 20 and for returning responses to the node 12.*

It would appear that the Examiner is implying that because the ADMIN process 40 performs administrative functions, it must reside on the master node of a distributed application. However, there is no discussion in Fanshier of the ADMIN process 40 bringing a component online, taking a component offline, or checking the status of an individual component, such as what is ordinarily accomplished via a master node. Therefore, one cannot deduce from the mere presence of ADMIN process 40 that the node on which it resides is the "designated master node."

In addition, there is no clear teaching that ADMIN process 40 resides on only one node - master or otherwise. In fact, Fanshier apparently teaches away from such an interpretation:

*In the remote mode, the TPSM utility 32 makes requests to a communications or transport process 42, which forwards the requests to an ADMIN process 40 on the appropriate node 12 in the TOP END system 10. The ADMIN process 40 then performs the desired function,*

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*transmits it to another component 20 on the node 12 or another node 12, and also forwards responses back to the node 12 via the communications process. The default mode of operation will be "remote" if the TPSM utility 32 is running from an administrative node 12 and "local" otherwise. (Fanshier, Col. 4, lines 52-61)(Emphasis added)*

*See also, Col. 6, lines 9-25:*

*The command object 54 describes a systems administrative request targeting a system 10, node 12 or component 20 that is generated by the TPSM utility 32. The supported functions available to the request include, but are not limited to, signing on and off systems 10 and nodes 12, and systems administrative functions including startup, shutdown, status, messages, connections, configurations, controls, and diagnostics. Command objects 54 can be set up to target any of the objects 48, 50, or 52 in the hierarchy 44, and their associated system 10, node 12 or component 20. When sent to that object 48, 50, or 52, the information from the command object 54 is transmitted to the actual system 10, node 12, or component 20 associated with the object 48, 50, or 52, where it is processed by the appropriate processing element, such as an ADMIN process 40 on the node 12 or a specific component 20 on the node 12, depending on the type of request. (Emphasis added)*

Therefore, Applicant respectfully requests the Examiner to specifically point out where in the Fanshier reference it teaches that the ADMIN process 40 performs administration for the entire Domain, including bringing a component online, taking a component offline, or checking the status of an individual component. (*Application No. 09/127,167, p.3*). This is central to the definition of "master node" as used by Applicant and as recognized in the field of distributed network applications.

**2. A Closer Functional Equivalent to the "Master Node" of Applicant's Claimed Invention Would Be A Combination of the TPSM Utility 32 with Node Manager 28; However as Node Manager 28 Resides on Several Nodes, This Cannot Be Deemed to Be Equivalent to a "Master Node"**

Again, in reviewing Fanshier at Col. 4, lines 45-61 with reference to FIG. 2, it will be appreciated that while the ADMIN process 40 is merely responsible for forwarding administrative requests to the desired TOP END noted 12 and components 20 and for returning responses to the node 12, it is the node manager 28 that:

*is a collection of processes that offer services to coordinate processing among nodes 12...Services provided by the node manager 28 include transaction management (for example, commit coordination), logging, failure recovery, client/server request handling...and application component 20 control (Id. at, Col. 3, lines 10-17)(Emphasis added)*

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and the TPSM utility 32 that:

*allows the user to specify systems 10, nodes 12, and/or components 20 that are to be manipulated by the systems management tools [which] provide for management support for diagnostics, connection and disconnection from the system 10, status information, alert levels, message routing, and recovery transaction processing.* (Fanshier, Col. 4, lines 18-24)(Emphasis added)

(See also supra, Col. 6, lines 9-25).

Thus it appears that the TPSM utility in combination with Fanshier's node manager 28 might be functionally closer to a "master node" as defined by Applicant. However, there is no teaching that the TPSM utility resides on only one node. In addition, as node manager 28 clearly resides on every node (*see, e.g., Fanshier FIG. 1*), this is antithetical to the definition of "master node" as used by Applicant and as recognized in the field of distributed network applications.

For all of these additional reasons, independent claims 1, 5, and 8 are patentable under 35 U.S.C. 103(a) over all of the cited art. As claims 2-4, 6-7, and 9-11 depend directly or indirectly therefrom, they too are patentable over all of the cited art.

C. The Vague Entries in the NCR Reference Cited by the Examiner Do Not Teach or Suggest the Limitation of a "Enabling a Distributed Network Application that Requires Centralized Administration Via a Master Node"

Although the Examiner does not address the absence of teaching of a distributed network application executing in a clustered computing environment in any of the cited references, he acknowledges that Fanshier does not specify a distributed network application that requires centralized administration. (*See, Office Action dated August 13, 2003, p. 3*). Instead, the Examiner argues that the NCR reference supports such a limitation, pointing to two line entries entitled "*Administration: Global Arbitration Node Capability*" and "*Middleware Engine: X/Open XA-Compliant Distributed Transaction Manager*."

First, Applicant would note that the limitation set forth in the subject claims is not merely that of "enabling a distributed network application that requires centralized administration," but rather "enabling a distributed network application that requires centralized administration *via a master node*," which as stated above is not disclosed in any of the references. However, even ignoring this point, Applicant has reviewed the NCR reference and can find little to no other discussion regarding centralized administration. The only further discussion regarding global administration appears to be at page 6 in

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which it is stated that the System Management Application Programming Interface (SMAPI) "ensures that administrators always have control over their TOP END enterprise administrative functions." However, there is no teaching of exactly what this means and what it entails, how the SMAPI accomplishes this and whether it does so via a defined or designated master node, as required in Applicant's claimed invention. Therefore, the NCR reference cannot be said to teach or suggest the limitation of a distributed network application that requires centralized administration, as required in independent claims 1, 5, and 8.

D. None of the Cited References Teaches or Suggests the Step of Determining Whether the Originating Node is a Designated Master Node for the Distributed Network Application

As set forth in Applicant's Response Including Amendment dated October 23, 2002 and Response dated June 2003, in looking to Applicant's invention of claim 1, Fanshier does not teach the step of determining whether the originating node is a designated master node for the distributed network application. Examiner argues that the fact that an administrative request in Fanshier's system is routed differently depending upon in which mode the TPSM utility 32 is running, is equivalent to this step:

*[D]etermining whether the TPSM utility is running in local or remote node [sic] ...[is] equivalent to the step of determining whether the originating mode is the designated master (Office Action dated August 13, 2003, p. 3)*

However, ignoring the argument above that determining whether the TPSM utility is operating in local or remote mode for is not equivalent to the step of determining whether the originating mode is the designated master node (see *B.1 and B.2 above*), the fact that an administrative request is routed differently depending upon in which mode the TPSM utility is running, is not equivalent to a "determination." The TPSM utility "may be executed in either a local or a remote mode" and is user-controlled and subject to user-specification (see, Col. 4, lines 18-24 and lines 45-46; see also e.g., Col. 3, lines 37-44 (global mode allows administrators to control all nodes from a single workstation)). This indicates that what mode the TPSM utility is running is not determined, but rather predefined – that is, there is no step of "determining" whether the TPSM utility is running in local or remote mode, but rather there is simply a step of routing an administrative request, wherein the routing depends on a setting that has been previously determined by the user/administrator of the system.

Thus independent claims 1, 5, and 8 are patentable under 35 U.S.C. 103(a) over all of the cited art, and claims 2-4, 6-7, and 9-11, which depend directly or indirectly therefrom, are also patentable over all of the cited art.

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II. Conclusion

Thus, for the foregoing reasons, Applicant respectfully submits that independent claims 1, 5, and 8, and dependent claim 9 are patentable under 35 U.S.C. §103(a) over Fanshier and NCR. Furthermore, dependent claims 2-4, 6-7, and 10-11 are patentable under 35 U.S.C. §103(a) over Fanshier and NCR in view of Bendert. Reconsideration of these claims and the application as a whole is thus respectfully solicited.

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. It is further believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application, including claims 1-11, is in condition for allowance. Applicants therefore respectfully request prompt and favorable consideration of this amendment. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (215) 986-5169.

Respectfully submitted,



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The Director for Patents is hereby authorized to charge payment to Deposit Account No. 19-3790 of any fees associated with this communication.

I hereby certify that this correspondence is being transmitted via facsimile ((703) 872-9306) to the United States Patent and Trademark Office on the date shown below.

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